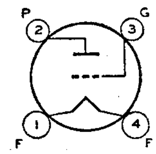
2A3

POWER TRIODE

Glass type used in output stage of radio receivers and amplifiers. As a class A_1 power amplifier, the 2A3 is usable either singly or in push-pull combination.



FILAMENT VOLTAGE (AC/DC)	2.5	volts
FILAMENT CURRENT	2.5	amperes
DIRECT INTERELECTRODE CAPACITANCES (Approx.):		
Grid to Plate	16.5	μμf
Grid to Filament	7.5	μμf
Plate to Filament	5.5	μμf

CLASS A_1 AMPLIFIER

Maximum Ratings:

PLATE VOLTAGE	300 *max*	volts
PLATE DISSIPATION	15 *max*	watts

Typical Operation:

Plate Voltage	250	volts
Grid Voltage*#	–45	volts
Plate Current	60	ma
Amplification Factor	4.2	
Plate Resistance	800	ohms
Transconductance	5250	μmhos
Load Resistance	2500	ohms
Second Harmonic Distortion	5	per cent
Power Output	3.5	watts

PUSH-PULL CLASS AB_1 AMPLIFIER

Maximum Ratings:

PLATE VOLTAGE	300 *max*	volts
PLATE DISSIPATION	15 *max*	watts

Typical Operation (*Values Are For Two Tubes*):

	Fixed Bias	*Cathode Bias*	
Plate Supply Voltage	300	300	volts
Grid Voltage*#	–62	–	volts
Cathode-Bias Resistor	–	780	ohms
Peak AF Grid-to-Grid Voltage	124	156	volts
Zero-Signal Plate Current	80	80	ma
Maximum-Signal Plate Current	147	100	ma
Effective Load Resistance (Plate-to-plate)	3000	5000	ohms
Total Harmonic Distortion	2.5	5.0	per cent
Power Output	15	10	watts

Maximum Circuit Values:

Grid-Circuit Resistance:		
For fixed-bias operation	0.05 *max*	megohm
For cathode-bias operation	0.5 *max*	megohm

*** Grid voltage referred to mid-point of ac-operated filament.**

When a single 2A3 is operated cathode-biased, the cathode-biasing resistor value should be 750 ohms

INSTALLATION AND APPLICATION

Type 2A3 requires a four-contact socket and may be mounted in any position Outline 51, OUTLINES SECTION. It is especially important that this tube, like other power-handling tubes, be adequately ventilated.

The values recommended for push-pull operation are different from the conventional ones usually given on the basis of characteristics for a single tube. The values shown for Push-Pull Class AB_1 operation cover operation with fixed bias and with cathode bias, and have been determined on the basis of no grid current flow during the most positive swing of the input signal and of cancellation of second-harmonic distortion by virtue of the push-pull circuit. The cathode resistor should preferably be shunted by a suitable filter network to minimize grid-bias variations produced by current surges in the cathode resistor.

When 2A3's are operated in push-pull, it is desirable to provide means for adjusting the bias on each tube independently. This requirement is a result of the very high transconductance of these tubes (5250 micromhos). This very high value makes the 2A3 somewhat critical as to grid-bias voltage, since a very small bias-voltage change produces a very large change in plate current. It is obvious, therefore, that the difference in plate current between two tubes may be sufficient to unbalance the system seriously. To avoid this possibility, simple methods of independent cathode-bias adjustment may be used, such as (1) input transformer with two independent secondary windings, or (2) filament transformer with two independent filament windings. With either of these methods, each tube can be biased separately so as to obtain circuit balance.

AVERAGE PLATE CHARACTERISTICS

